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Research Note
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FOREST AREA IN INDIANA, 1986

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ABSTRACT.—In 1986 Indiana's forests covered 4.4 million acres, an increase of 12 percent from the 4.0 million acres found in 1967.
KEY WORDS: Statistics, timberland, woodlands, forest type.

Forests are a large and important resource in Indiana. Of every 100 acres in the State, 19 are forested—a total of 4.4 million acres. Timberland, that land suitable for producing industrial wood and not withdrawn from utilization, accounted for 4.3 million acres in 1986, nearly all of the forest land in the State. This is an increase of 400,000 acres (10.3 percent) since the last inventory in 1967. Woodland, forest land that is unproductive and too poor to grow timber for industrial use, occupied 30,000 acres in 1967. But no woodland was found in 1986 because it had been converted to other uses. Timberland reserved for uses other than timber production, such as parks and natural areas, increased from 38,500 acres in 1967 to 143,400 acres in 1986.

Land use	Survey year 1967	Survey year 1986	Change since 1967
	(Thousand acres)		
Forest			
Timberland	3,895.8	4,295.8	+ 400.0
Woodland	30.0	—	− 30.0
Reserved timberland	38.5	143.4	+ 104.9
Total forest	3,964.3	4,439.2	+ 474.9
Nonforest			
Cropland	13,317.2	13,936.2	+ 619.0
Pasture	3,454.7	1,583.0	− 1,871.7
Other	2,424.9	3,043.7	+ 618.8
Total nonforest	19,196.8	18,562.9	− 633.9
All land	23,161.1[1]	23,002.1[2]	− 159.0

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The Knobs Unit, located in the south-central part of the State (fig. 1), is the most heavily forested Inventory Unit. There, timberland occupies 42 percent of the land. The other two Forest Inventory Units in the southern portion of the State are also fairly heavily forested. The Upland Flats Unit in southeastern Indiana is 35 percent timberland, and the Lower Wabash Unit in the southwest is 23 percent timberland. Brown County, the most heavily forested county in the State, is 66 percent timberland. Forests in these areas not only provide employment in the wood products industry, but are also an essential ingredient in the tourist and recreation industry.

In the urban and agricultural northern portion of the State, forests occur in smaller and more scattered units than in the south. In the Northern Inventory Unit (the northern half of the State), timberland covers only 8 percent of the area. Timberland area increased in all Inventory Units between 1967 and 1986 except in the Knobs Unit where it decreased slightly (1.6 percent). This was due to losses to agriculture, urbanization, reserved land, and other uses. Increases in the Upland Flats, Northern, and Lower Wabash Units were 61.5, 19.9, and 2.9 percent, respectively. Much of this increase in area was from land formerly classed as wooded pasture in 1967, which was no longer being grazed in 1986 because of changes in agriculture practices. Another reason for increases in timberland is reversion of marginal cropland to timberland.

[1] *Bureau of the Census, Land and Water Area of the United States, 1960.*

[2] *National Resources Inventory, Soil Conservation Service, 1982.*

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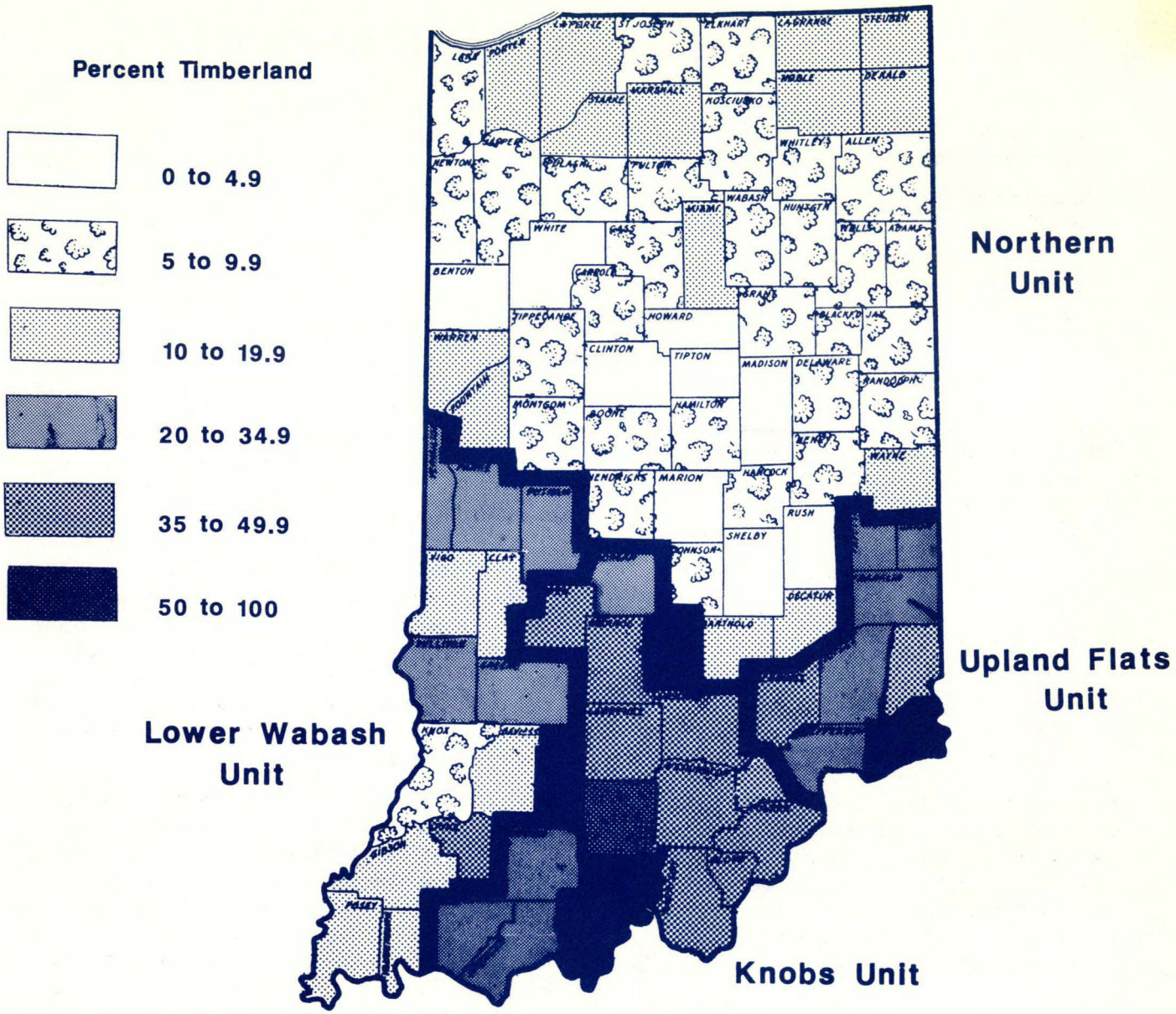

Figure 1.—*Timberland as a percent of land area by county, Indiana, 1986.*

Inventory Unit	Timberland area 1967	Timberland area 1986	Change since 1967
	(Thousand acres)		
Lower Wabash	836.2	860.4	+ 24.2
Knobs	1,769.2	1,741.1	– 28.1
Upland Flats	353.7	571.1	+217.4
Northern	936.7	1,123.2	+186.5
	3,895.8	4,295.8	+400.0

The oak-hickory forest type (nearly a third of the timberland area in Indiana), the maple-beech type (23 percent), and the elm-ash-soft maple type (19 percent) together make up most of the State's timberland area as shown in the following tabulation:

Forest type	Area timberland (Thousand acres)
Jack-red-white pine	54.7
Shortleaf pine	23.9
Scotch-Virginia pine	70.6
Oak-pine	104.2
Oak-hickory	1,370.8
Chestnut-scarlet oak	46.1
Sassafrass-persimmon	19.8
Oak-gum	51.7
Lowland oak	30.9
Elm-ash-soft maple	830.5
Cottonwood	18.4
Maple-beech	984.7
Cherry-ash-yellow-poplar	649.0
Nonstocked	40.5
Total	4,295.8

The lumber and wood products industry in the State relies heavily on this land for its raw materials. This industry provides employment for 18,000 people in Indiana, with an annual payroll of more than 300 million dollars in 1984[3] .

Nonforest land with some trees occupies a small but significant part of the State (4 percent) as shown in the following tabulation. This land provides wildlife habitat, protects the soil, and produces timber. Much of the firewood cut in Indiana comes from this land.

Nonforest with trees land class	Area of nonforest with trees (Thousand acres)
Cropland with trees	78.1
Improved pasture with trees[4]	149.9
Natural wooded strips	111.7
Idle farmland	24.4
Marsh	12.1
Windbreaks[5]	40.2
Wooded pasture[6]	120.0
Urban forest[7]	117.0
Urban and other with trees	274.6
Total	928.0

The information in this Research Note comes from the third Indiana forest inventory, made during 1985 and 1986 by the North Central Forest Experiment Station in cooperation with the Indiana Department of Natural Resources, Division of Forestry.

The sampling error was estimated to be ± 1.00 percent for the timberland area. Additional funding provided by Indiana State legislature through the DNR made it possible to achieve this high level of accuracy.

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[3]*Bureau of the Census, County Business Patterns—Indiana, 1984.*

[4]*Improved pasture with trees—land currently improved for grazing by cultivating, seeding, irrigation, or clearing of trees or brush, that is less than 16.7 percent stocked with all trees.*

[5]*Windbreak—a small wooded area less than 120 feet wide primarily used to protect buildings, soil, and cropland.*

[6]*Wooded pasture—pasture land with more than 16.7 percent stocking in all trees, but less than 25 percent stocking in growing stock trees and that would qualify as pastured timberland except that the primary land use is grazing. Evidence of this is severe compaction of the soil from grazing and heavy browsing of the herbaceous and woody understory.*

[7]*Urban forest land—land that would otherwise meet the criteria for timberland, but that is in an urban-suburban area surrounded by commercial, industrial, or residential development.*

Table 1.--Area of land by county and major land use class, Indiana, 1986

Unit and county	Land area	Forest land				Nonforest land with trees	Nonforest land as a percent of land area	Sampling error for timberland
		All forest land	Reserved timberland	Timberland	Timberland as a percent of land area			
	Thousand acres				Percent	Thousand acres	Percent	Percent
Lower Wabash Unit								
Clay	230.5	44.7	0.4	44.3	19.2	15.7	6.8	11.11
Daviess	276.6	42.1	0.5	41.6	15.0	9.9	3.6	11.46
Gibson	313.6	42.4	0.4	42.0	13.4	14.3	4.6	11.41
Greene	348.6	106.2	0.9	105.3	30.2	20.9	6.0	7.20
Knox	332.6	31.0	0.2	30.8	9.3	17.3	5.2	13.32
Martin	216.8	131.9	3.5	128.4	59.2	6.4	3.0	6.52
Parke	284.2	91.0	3.4	87.6	30.8	12.8	4.5	7.90
Pike	218.0	84.4	0.5	83.9	38.5	8.6	3.9	8.07
Posey	261.8	49.9	4.8	45.1	17.2	9.5	3.6	11.01
Putnam	308.4	76.7	0.2	76.5	24.8	16.0	5.2	8.45
Sullivan	287.8	65.5	0.8	64.7	22.5	9.9	3.4	9.19
Vanderburgh	151.1	25.7	1.0	24.7	16.3	18.7	12.4	14.87
Vermillion	166.4	35.0	0.3	34.7	20.9	6.2	3.7	12.55
Vigo	262.1	51.1	0.3	50.8	19.4	15.4	5.9	10.37
Total	3,658.5	877.6	17.2	860.4	23.5	181.6	5.0	2.52
Knobs Unit								
Brown	199.2	150.0	18.4	131.6	66.1	10.4	5.2	3.02
Clark	240.8	85.9	1.0	84.9	35.3	14.2	5.9	3.76
Crawford	196.1	120.8	1.5	119.3	60.8	7.8	4.0	3.17
Dubois	274.8	93.8	0.8	93.0	33.8	15.2	5.5	3.59
Floyd	95.8	34.9	0.4	34.5	36.0	14.2	14.8	5.90
Harrison	311.0	135.2	3.1	132.1	42.5	17.1	5.5	3.01
Jackson	327.8	125.2	4.6	120.6	36.8	17.2	5.2	3.15
Lawrence	289.3	126.8	1.5	125.3	43.3	15.4	5.3	3.09
Monroe	246.4	130.8	13.3	117.5	47.7	13.3	5.4	3.20
Morgan	261.6	88.2	1.5	86.7	33.1	18.3	7.0	3.72
Orange	254.7	131.5	2.4	129.1	50.7	13.3	5.2	3.05
Owen	247.1	110.3	2.8	107.5	43.5	15.7	6.4	3.34
Perry	244.2	153.8	1.3	152.5	62.4	9.7	4.0	2.80
Scott	122.5	45.6	2.6	43.0	35.1	6.9	5.6	5.28
Spencer	256.2	65.0	2.5	62.5	24.4	14.8	5.8	4.38
Warrick	250.4	84.0	2.6	81.4	32.5	16.8	6.7	3.84
Washington	330.2	123.5	3.9	119.6	36.2	23.0	7.0	3.17
Total	4,148.1	1,805.3	64.2	1,741.1	42.0	243.3	5.9	.83
Upland Flats Unit								
Dearborn	196.7	91.1	--	91.1	46.3	12.6	6.4	8.86
Fayette	137.8	33.6	0.1	33.5	24.3	8.5	6.2	14.62
Franklin	246.9	82.2	1.8	80.4	32.6	17.4	7.0	9.43
Jefferson	232.0	87.3	9.0	78.3	33.8	19.7	8.5	9.56
Jennings	241.8	95.7	8.1	87.6	36.2	15.0	6.2	9.04
Ohio	55.8	27.9	--	27.9	50.0	3.6	6.5	16.02
Ripley	286.3	88.8	13.1	75.7	26.4	25.9	9.0	9.72
Switzerland	143.1	75.7	0.5	75.2	52.6	8.9	6.2	9.76
Union	104.0	21.9	0.5	21.4	20.6	6.7	6.4	18.29
Total	1,644.4	604.2	33.1	571.1	34.7	118.3	7.2	3.54

(Table 1 continued on next page)

(Table 1 continued)

County	Land area	Forest land				Nonforest land with trees	Nonforest land as a percent of land area	Sampling error for timberland
		All forest land	Reserved timberland	Timberland	Timberland as a percent of land area			
	Thousand acres				Percent	Thousand acres	Percent	Percent
Northern Unit								
Adams	217.5	14.2	0.1	14.1	6.5	2.1	1.0	21.78
Allen	421.7	30.5	0.7	29.8	7.1	23.8	5.6	14.98
Bartholomew	261.5	47.1	2.3	44.8	17.1	6.9	2.6	12.22
Benton	260.2	1.5	--	1.5	0.6	0.4	0.2	66.77
Blackford	106.0	9.4	--	9.4	8.9	1.3	1.2	26.67
Boone	271.0	15.3	0.1	15.2	5.6	4.1	1.5	20.97
Carroll	238.1	18.5	0.1	18.4	7.7	6.1	2.6	19.06
Cass	265.1	24.3	0.1	24.2	9.1	5.8	2.2	16.62
Clinton	259.3	9.3	0.1	9.2	3.5	2.4	0.9	26.96
Decatur	238.6	24.3	0.2	24.1	10.1	3.4	1.4	16.66
De Kalb	232.4	27.4	0.1	27.3	11.7	5.9	2.5	15.65
Delaware	250.8	15.9	0.1	15.8	6.3	4.6	1.8	20.57
Elkhart	298.4	29.4	0.3	29.1	9.7	8.4	2.8	15.16
Fountain	254.6	37.4	0.8	36.6	14.4	8.4	3.3	13.52
Fulton	236.3	20.5	0.1	20.4	8.6	5.1	2.2	18.11
Grant	265.5	18.3	0.1	18.2	6.9	4.6	1.7	19.17
Hamilton	255.0	20.4	0.4	20.0	7.8	5.3	2.1	18.29
Hancock	196.5	11.9	0.1	11.8	6.0	4.9	2.5	23.81
Hendricks	261.7	17.8	0.1	17.7	6.8	5.1	1.9	19.44
Henry	251.8	20.7	0.1	20.6	8.2	8.4	3.3	18.02
Howard	187.6	8.7	0.1	8.6	4.6	7.4	3.9	27.88
Huntington	234.4	23.1	0.2	22.9	9.8	5.3	2.3	17.09
Jasper	359.0	27.9	0.9	27.0	7.5	6.6	1.8	15.74
Jay	245.8	24.1	0.1	24.0	9.8	3.0	1.2	16.69
Johnson	205.8	20.2	0.1	20.1	9.8	5.7	2.8	18.24
Kosciusko	345.2	33.1	0.1	33.0	9.6	5.8	1.7	14.24
La Grange	243.2	36.0	0.1	35.9	14.8	10.6	4.4	13.65
Lake	320.5	18.5	0.7	17.8	5.6	11.5	3.6	19.38
La Porte	384.2	42.2	0.8	41.4	10.8	11.2	2.9	12.71
Madison	289.8	13.1	0.1	13.0	4.5	4.4	1.5	22.68
Marion	252.9	1.9	1.0	0.9	0.4	53.3	21.1	86.20
Marshall	284.3	31.1	0.1	31.0	10.9	6.5	2.3	14.69
Miami	240.9	25.5	0.1	25.4	10.5	4.1	1.7	16.23
Montgomery	323.1	25.7	1.7	24.0	7.4	7.2	2.2	16.69
Newton	256.6	19.5	1.6	17.9	7.0	2.1	0.8	19.33
Noble	264.0	33.6	1.3	32.3	12.2	7.9	3.0	14.39
Porter	267.7	37.9	7.3	30.6	11.4	13.6	5.1	14.78
Pulaski	278.1	29.3	2.3	27.0	9.7	5.7	2.0	15.74
Randolph	290.2	19.8	0.1	19.7	6.8	4.2	1.4	18.42
Rush	261.2	12.6	0.2	12.4	4.7	7.4	2.8	23.22
St. Joseph	293.9	23.3	0.8	22.5	7.7	10.3	3.5	17.24
Shelby	264.0	12.6	0.1	12.5	4.7	2.1	0.8	23.13
Starke	198.0	27.1	0.2	26.9	13.6	6.9	3.5	15.77
Steuben	196.8	32.5	1.0	31.5	16.0	7.9	4.0	14.57
Tippecanoe	321.1	22.8	0.2	22.6	7.0	7.8	2.4	17.20
Tipton	166.6	4.8	0.1	4.7	2.8	4.2	2.5	37.72
Wabash	265.6	24.2	0.2	24.0	9.0	8.9	3.4	16.69
Warren	234.5	23.9	0.1	23.8	10.1	5.8	2.5	16.76
Wayne	258.3	32.0	0.1	31.9	12.3	17.1	6.6	14.48
Wells	236.9	17.3	1.1	16.2	6.8	3.4	1.4	20.32
White	324.0	13.1	0.1	13.0	4.0	4.9	1.5	22.68
Whitley	214.9	20.6	0.1	20.5	9.5	5.0	2.3	18.06
Total	13,551.1	1,152.1	28.9	1,123.2	8.3	384.8	2.8	2.44
All counties	23,002.1	4,439.2	143.4	4,295.8	18.7	928.0	4.0	1.00